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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,991	10/17/2001	Bassam M. Hashem	71493-953/pw	4493
7590	07/27/2006		EXAMINER	HUYNH, NAM TRUNG
SMART & BIGGAR P.O. Box 2999, Station D 900-55 Metcalfe Street Ottawa, ON K1P 5Y6 CANADA			ART UNIT	PAPER NUMBER
			2617	
			DATE MAILED: 07/27/2006	

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/977,991	HASHEM ET AL.
	Examiner Nam Huynh	Art Unit 2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 10 May 2006.
 2a) This action is FINAL. 2b) This action is non-final.
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-30 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) Claim(s) _____ is/are allowed.
 6) Claim(s) 1-30 is/are rejected.
 7) Claim(s) _____ is/are objected to.
 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.
 10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ .	5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)
	6) <input type="checkbox"/> Other: _____ .

DETAILED ACTION***Response to Amendment***

This office action is in response to amendment filed on 5/10/06. None of the original claims 1-30 were amended.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Persson (US 5,487,174) in view of Zimmermann et al. (US 6,804,213).

- A. Regarding claims 1, 9, and 16, Persson discloses a method of bidirectional communication in a cellular mobile telecommunications system having cells of substantially different size and a base station for each cell comprising:

- A MSC (mobile switching center) that makes decisions on which base station shall be responsible for transmission of radio signals or downlink handoff decisions or control. The MSC is also makes decisions on which base station shall be responsible for receiving the radio signals or uplink handoff decisions or control (column 8, lines 43-55). The MSC also monitors traffic channels and is capable of allocating either downlink or uplink traffic channels to respective base stations (column 18, lines 4-23). Therefore rendering the determination of the predominant direction of traffic.

Persson does not explicitly disclose storing an uplink and downlink candidate list of base stations and selecting at least one optimum base station from the candidate list for both directions of traffic. Zimmermann et al. discloses a cordless telephone system in which a pre-selection of candidate channel pairs (consisting of an uplink and a downlink channel) for a possible handover is determined and collected in a group (column 2, lines 61-63). Furthermore a shift register is used to memorize the best channel evaluated in the uplink and downlink directions and the channel with the highest number of occurrences in both shift registers is used for determining the new channel pair when quality of the best channel pair carrying the momentary call connection becomes unacceptable (column 7, lines 32-41). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to implement the teachings of Zimmermann et al., by allowing the MSC of Persson, to maintain a list of candidate base stations for the uplink and downlink direction in order to

establish required additional connections and to ensure that proper handover is possible even in case of sudden interruptions of the connection with the current serving base station.

B. Regarding claims 2, 4, 10, 12, 17, 19, 25, and 27, in the combination of Persson and Zimmermann et al., the teachings of Zimmermann et al. of storing and selecting from a candidate listing are applied in the base station selection method of Persson. Therefore in this combination, the storing and selection of candidate channel pairs is equivalent to the storing and selection of candidate base stations.

Zimmermann et al. discloses that the candidate channel pair is determined based on interference strength values. The determination of these interference strength values can be done on the basis of signal quality or signal strength measurements or a combination of both (column 4, lines 45-67). Furthermore, Zimmerman discloses that the candidate group is determined based on short measurements of the received field strength are periodically accomplished for all available channels in the uplink as well as in the downlink direction (column 6, lines 6-8) and is placed into a listing (column 6, lines 36-39). Although Zimmerman discloses that a candidate channel pair is stored, which includes both uplink and downlink, it is obvious to one of ordinary skill in the art that a channel can be chosen independently, i.e. exclusively in an uplink direction, because both directions are measured. It is further obvious to include a channel pair in the listing if it is a candidate channel pair, and to exclude the channel pair in the listing if it is not a candidate.

C. Regarding claims 3, 5, 11, 13, 18, 20, 26, and 28, Zimmermann et al. disclose that it is possible to provide a criterion that places all candidate channel pairs in groups that exceed a predetermined threshold with respect to a predetermined signal quality (column 5, lines 2-5).

D. Regarding claims 6, 14, 21, and 29, Persson discloses an index (x,y), or ID, for the base station responsible for uplink and downlink to the mobile station (column 16). Zimmermann et al. discloses a shift register that is used to memorize the best channel evaluated in the uplink and downlink directions and the best channel with the highest number of occurrences in both shift registers is used for determining the new channel pair when quality of the channel pair carrying the momentary call connection becomes unacceptable (column 7, lines 32-41). Therefore if the teachings of Zimmermann et al. were followed in the base station selection of Persson, the identity of the optimum base station would be transmitted to the terminal.

E. Regarding claims 7, 15, 22, and 30, Persson discloses the following control steps initiated by the MSC:

- For downlink, the MSC orders base stations responsible for downlink to transmit downlink signal strength measuring orders to mobile stations (column 9, lines 17-20). Then the MSC allocates a free downlink at the base station whose signals are received strongest at the mobile station (column 9, lines 44-46).
- For uplink, the MSC orders base stations responsible for uplink to transmit downlink signal strength measuring orders to mobile stations

(column 9, lines 51-55). Then the MSC allocates a free downlink at the base station whose signals are received strongest at the mobile station (column 10, lines 12-15).

Zimmermann et al. teaches the limitation of choosing from a candidate list as explained above in "A" of this office action. Although Persson discloses that downlink/uplink base stations are selected based on signals received strongest at the mobile station, one of ordinary skill in the art would recognize that the base station with strongest received signals at the mobile station would have the lowest current load.

F. Regarding claims 8 and 23, Persson discloses that in some systems the base stations are not directly connected to a mobile switching center (MSC), but to a base station controller (BSC) (column 6, lines 28-32).

G. Regarding claim 24, the limitations are rejected as applied to claim 1. Although it is not explicitly disclosed that a computer readable storage medium is used to carry out instructions of the method described, one of ordinary skill in the art would recognize that the MSC or BSC of the system in Persson is a computer readable medium that would operate based on instructions or programming. Furthermore, the process of selecting optimum base stations or channel pairs would also be carried out via computer based programming or instructions.

Response to Arguments

4. Applicant's arguments filed 5/10/2006 have been fully considered but they are not persuasive.

Applicant asserts that there is no suggestion made anywhere in either Persson or Zimmerman et al. of "determining a predominant direction of traffic with respect to the terminal". Examiner respectfully disagrees with this assertion.

Persson discloses that the MSC monitors the uplink and compares uplink parameters with desired uplink parameter values of thresholds. The MSC also monitors downlink parameters with desired downlink parameter values of thresholds. When uplink handoff between a larger cell and a smaller cell is desirable in view of uplink parameter values, the MSC tries to perform uplink handoff between a smaller and a larger cell independently of downlink handoff. When downlink handoff between a smaller cell and a larger cell is desirable in view of downlink parameter values, the MSC tries to perform downlink handoff between a larger cell and a smaller cell independently of uplink handoff (column 8, lines 56-67). This citation shows that both the uplink and downlink parameters are monitored and handoff (i.e. a base station selection) is performed for an uplink or downlink direction independently from one another. Therefore, if a downlink parameter exceeds a desired threshold, which would show a predominant direction of traffic in the downlink direction with respect to the terminal, the MSC attempts to handoff, or perform the selection of a suitable base station to serve the mobile station. Alternatively, the same concept would apply in an uplink direction.

5. In response to applicant's argument that Zimmerman et al. is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the

particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). Applicant asserts that Zimmerman et al. is directed to a cordless telephone system rather than a cellular mobile communication system. However, it is well known in the art that a cordless telephone system can be a cellular mobile communication system. The terms cordless and cellular pertain to wireless technology and a telephone is a means of communication.

6. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant asserts that channels described by Zimmerman et al., cannot function as both uplink and downlink channels simultaneously, whereas the uplink and downlink candidate set of the present invention may contain common base stations. However, the citation of Zimmerman et al. was presented to show the storing and selection of candidates in an uplink and downlink direction of traffic.

Additionally, applicant asserts that there is no suggestion of load balancing in the teachings of Zimmerman et al. However, this teaching can be found in Persson. Persson discloses that the MSC makes handoff decisions based on parameters including estimated signal strength. The MSC orders base

stations responsible for the downlink to transmit signal strength measuring orders to the mobile station and sends uplink signal strength measuring orders to base stations. These strengths are then reported and utilized by the MSC to allocate a free downlink or handoff to the base station receiving the strongest signals received at the mobile station. In the uplink direction, these reported signal strengths are used to allocate a free uplink or handoff to the base station receiving the strongest signal strength from the mobile station. As previously stated, it is well known in the art that a base station load can be determined by the signal strength because a low signal strength would indicate a high load (columns 9-10, lines 17-67, 1-18). Therefore the measurement of signal strength in the downlink and uplink direction, in addition to the selection of the base station with the highest signal strength, renders the selection of the base station with the lowest current load. Furthermore, a handoff procedure is well known in the art for providing "load balancing" to a system.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be

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calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nam Huynh whose telephone number is 571-272-5970. The examiner can normally be reached on 8 a.m.-5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, George Eng can be reached on 571-272-7495. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NTH
7/24/06


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SUPERVISORY PATENT EXAMINER